ENGINEERING

Regional Supervisor, Branch of Wildlife Refuges

March 28, 1962

In reply refer to: E
Tewaukon - water mgmt.

Acting Regional Engineer

Tewaukon NWR, North Dakota - 1962 Annual Water Program

We have reviewed the subject report and comment as follows:

Doeling 3/28/62
Stevenson 3/28/62

The water supply from spring snowmelt is favorable and we concur in the proposal to fill all units to spillway level and that they be maintained at the highest practical levels.

Reference elevations have been established at gauge sites. Staff gauges are on order and when delivered shall be installed at the following locations:

a) Cutler Marsh
b) White Lake outlet
c) Tewaukon Lake outlet (1 gauge in lake above outlet and 1 gauge in Rice River below outlet)
d) Skroch Bay
e) Cloud Lake

E. B. Stevenson

extra cc to Refuges
ELDoeling:rj

Jan. 3, 62 EL

ANNUAL WATER PROGRAM - 1962 - TEWAUKON

The following table shows an estimate of water levels in refuge pools at various times of the year, corresponding surface acerage and acre feet of water required to reach full pool elevation.

Month	Inches Below Spillway	Water Surf. Acres	Acre Ft. Needed to Refill 1961	Acre Ft. Needed to Refill 1962
		1961 Pools		
		Cutler Marsh		
Jan. - March	41	103	575	
May 1	17	160		
September 1	25	129		
Nov. - Dec. 31	26	128		375
		White Lake		
Jan. - March	24	150	320	
May 1	10	163		
September 1	10	163		
Nov. 1 - Dec. 31	11	161		155
		Clouds Lake		
Jan. - March	40	99	345	
May 1	36	100		
Sept. 1	36	100		
Nov. 1 - Dec. 31	36	100		310
		Lake Tewaukon		
Jan. - March	17	1,033	1,470	
May 1	14	1,034		
September 1	17	1,033		
Nov. - Dec. 31	18	1,032		1,555

1961

The above table shows that no pools reached spillway elevation during 1961. The May 1 readings were taken after the completion of the spring run-off. It was estimated that about 2,700 acre feet of water was needed to refill all pools before spring run-off began. Upon completion of this run-off about 1,900 acre feet remained without water. This shows that spring run-off was very light with only 800 acre feet being received.

Heavy rains during July (five to nine inches being received in a single rain in the hills just south of the refuge) caused much run-off. This additional inflow was great enough so that most pools were at nearly the same level on September 1 as they were on May 1. Run-off received

during this summer period is estimated at 2,200 acre feet. This gives us a total of about 3,000 acre feet of run-off received during 1961. The estimated water requirement to fill all pools in the spring of 1962 is 2,400 acre feet.

Pool summaries and recommendations are given in the following paragraphs:

Cutler Marsh. This pool was maintained at the maximum elevation allowable by water received. The highest elevation reached was seventeen inches below spillway level. This reading occurred about May 1, or immediately after completion of spring run-off. Summer rains helped maintain Cutler Marsh at a near constant level; with only an eight inch decrease between May 1 and freeze-up in early November.

The response of vegetation to this years program was as follows:

Submergents began showing good growth during late May and June. However, by the first of July submergent growth was almost non-existant. This disappearance of submerged aquatics is not believed to be a result of water management because water levels remained fairly constant throughout the summer. This same phenomenon was also observed in other water areas in this part of the country. Some factor other than water levels caused this decline in submergent growth.

Water levels could not be held high enough to retard the growth of emergents. The strips that were sprayed with Amitrol T during the summer of 1960 showed very good signs of killing the cattail and opening up. Additional spraying with the same herbicide was accomplished this year. The water elevation should be held at the highest possible level next spring and summer to help control this emergent growth.

Cutler Marsh continued to be attractive as a resting place for all waterfowl species. Mallards used the area for resting and loafing to a greater extent then they have during the past several falls. Dead and flattened cattails provided excellent loafing sites.

It is recommended to maintain Cutler Marsh at the maximum elevation possible during 1961.

White Lake: Very little use was made of this area by nesting or migrating waterfowl. Aquatic vegetation is almost non-existent except for a heavy emergent growth of cattails on the west end. A portion of this growth was sprayed with Amitrol T and the results will not be known until next year. No control of water levels in possible at present and therefore this pool will have to seek its own level.

Clouds Lake: Fall migrant waterfowl use of this area was again very good. Submerged aquatic growth was much poorer then during the past few years. Good growth began but disappeared before July 1; much the same as Cutler Marsh. No water level control is possible.

Lake Tewaukon: Aquatic vegetation is scarce and waterfowl use is restricted to use by migrants for resting purposes. It is recommended that Lake Tewaukon be held at the highest possible level next year.

Water Management Summary for 1962: Maintain all pools at full capacity, water supply permitting. It is not known what water associated development will take place, if any, in 1962. If funds become available for any development, the necessary draw-downs will be requested as early as possible.